

What is claimed is:

1. A door comprising:
 - vertical jambs comprising vertical channels;
 - a window sash movable in the vertical channels;
 - 5 a retractable screen assembly attached to the door, the retractable screen assembly comprising:
 - a roller;
 - a flexible screen attached at a first end to the roller and at a second end to the movable window sash; and
 - 10 a biasing mechanism adapted to apply a continuous torque to the roller, the torque generating a positioning force on the window sash equal to at least 50% of the force of gravity acting on a window sash, such that the window sash can be positioned at an infinite number of locations along the vertical channels.
- 15 2. The door of claim 1 wherein the positioning force comprises at least 80% of the force of gravity acting on the window sash.
3. The door of claim 1 wherein the positioning force
20 substantially counterbalances the force of gravity acting on the window sash.
4. The door of claim 1 wherein the positioning force applies a braking force on the window sash as it moves in a downward direction.
- 25 5. The door of claim 1 wherein the positioning force comprises a friction force acting between the window sash and the vertical channels.

6. The door of claim 5 wherein the friction force combines with the torque to retain the window sash in an infinite number of locations along the vertical channels.

5 7. The door of claim 5 wherein the friction force comprises about 5% to about 20% of the force of gravity acting on the window sash.

8. The door of claim 1 wherein the flexible screen is retracted when the window sash is moved from an open position to a closed position.

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9. The door of claim 1 wherein the flexible screen is drawn across an opening formed when the window sash is in an open position.

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10. The door of claim 1 wherein edges of the flexible screen are releasably retained in the vertical channel when the window sash is in an open position.

11. The door of claim 1 wherein the door comprises one of a hollow core storm door and a solid core storm door.

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12. The door of claim 1 wherein the window sash comprises the upper window sash of a door.

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13. The door of claim 1 wherein the flexible screen is attached to a frame member on the window sash.

14. The door of claim 1 wherein the flexible screen comprises one of a blind, a translucent film, a reflective film, or a bug screen.

15. The door of claim 1 wherein the biasing mechanism comprises a spring.

16. The door of claim 1 comprising a sash positioning device 5 attached to the window sash and releasably engagable with at least one contact surface on the vertical channel, such that the sash positioning device can engage the vertical channel at an infinite number of locations.

17. The door of claim 16 wherein the sash positioning device 10 and the positioning force cooperate to retain the window sash at an infinite number of location within the vertical channel.

18. The door of claim 1 comprising a sash positioning device attached to the vertical jambs and releasably engagable with at least one contact 15 surface on the window sash, such that the sash positioning device can engage the window sash at an infinite number of locations.

19. The door of claim 18 wherein the sash positioning device and the positioning force cooperate to retain the window sash at an infinite 20 number of location within the vertical channel.

20. A door comprising:
vertical jambs comprising vertical channels;
a window sash movable in the vertical channels;
a sash positioning device adapted to retain the window sash at any 25 of an infinite number of locations along the vertical channels;
a retractable screen assembly attached to the door, the retractable screen assembly comprising;
a roller;

a flexible screen attached at a first end to the roller and at a second end to an upper edge of the movable window sash; and

5 a retraction mechanism continuously acting on the roller, the retraction mechanism generating a continuous positioning force on the window sash having a magnitude of at least 20% of the force of gravity acting on a window sash, such that the window sash can be positioned at an infinite number of locations along the vertical channels.

21. The door of claim 20 wherein the positioning force has a
10 magnitude of about 40% of the force of gravity acting on the window sash.

22. The door of claim 20 wherein the positioning force has a magnitude of about 60% of the force of gravity acting on the window sash.

15 23. The door of claim 20 wherein the positioning force has a
magnitude of about 80% of the force of gravity acting on the window sash.

24. A door comprising:
vertical jambs comprising vertical channels;
a window sash movable in the vertical channels;
a sash positioning device attached to the window sash and
releasably engagable with at least one contact surface on the vertical channel,
such that the sash positioning device can engage the vertical channel at an infinite
number of locations; and

25 a retractable screen assembly attached to the door, the retractable screen assembly comprising a roller and a flexible screen attached at a first end to the roller and at a second end to an upper edge of the movable window sash, and a retraction mechanism adapted to provide a continuous positioning force on the window sash.

25. The door of claim 24 wherein the window sash comprises the upper window sash of the door.

5 26. The door of claim 24 wherein the window sash comprises the lower window sash of the door.

27. The door of claim 24 wherein the retractable screen assembly is attached to a top of the door.

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28. The door of claim 24 wherein the retractable screen assembly is attached to a bottom of the door.

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29. The door of claim 24 wherein the positioning force comprises at least 20% of the force of gravity acting on the window sash.

30. The door of claim 24 wherein the positioning force comprises at least 40% of the force of gravity acting on the window sash.

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31. The door of claim 24 wherein the positioning force substantially counterbalances the force of gravity acting on the window sash.

32. A method of operating a movable sash in a door comprising the steps of:

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slidably engaging a window sash with vertical channels on vertical jambs;

attaching a first end of a flexible screen to a roller and a second end to an edge of the window sash;

applying a torque to the roller; and

continuously applying a positioning force to the window sash, the positioning force equal to at least 50% of the force of gravity acting on a window sash, such that the window sash can be positioned at an infinite number of locations along the vertical channels.

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33. The method of claim 32 wherein applying the positioning force comprises generating a friction force between the window sash and the vertical channels, the friction force equal to about 5% to about 20% of the force of gravity acting on the window sash.

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34. The method of claim 32 comprising retracting the flexible screen when the window sash is moved from an open position to a closed position.

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35. The method of claim 32 comprising drawing the flexible screen across an opening formed when the window sash is in an open position.

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36. The method of claim 32 comprising retaining a portion of the flexible screen in the vertical channel when the window sash is in an open position.

37. The method of claim 32 wherein the positioning force is equal to about 80% of the force of gravity acting on the window sash.

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38. The method of claim 37 wherein the positioning force substantially counterbalances the force of gravity acting on the window sash.

39. The method of claim 37 wherein the positioning force applies a braking force on the window sash as it moves in a downward direction.

40. The method of claim 32 comprising
attaching a sash positioning device to the window sash; and
releasably engaging the sash positioning device with at least one
5 contact surface on the vertical channel, such that the sash positioning device can
engage the vertical channel at an infinite number of locations.

41. The method of claim 32 comprising
attaching a sash positioning device to the vertical jambs; and
10 releasably engaging the sash positioning device with at least one
contact surface on the window sash, such that the sash positioning device can
engage the window sash at an infinite number of locations.

42. A method of operating a movable sash in a door comprising
15 the steps of:
slidably engaging a window sash with vertical channels on vertical
jambs;
releasably engaging the sash positioning device with at least one
contact surface on the vertical channel, such that the sash positioning device can
20 engage the vertical channel at an infinite number of locations;
attaching a first end of a flexible screen to a roller and a second end
to an edge of the window sash; and
continuously applying a torque to the roller, the torque generating a
positioning force having a magnitude of at least 20% of the force of gravity
25 acting on a window sash, such that the window sash can be positioned at an
infinite number of locations along the vertical channels

43. The method of claim 42 wherein the positioning force has a
magnitude of about 40% of the force of gravity acting on the window sash.

44. The method of claim 42 wherein the positioning force has a magnitude of about 60% of the force of gravity acting on the window sash.

5 45. The method of claim 42 wherein the positioning force has a magnitude of about 80% of the force of gravity acting on the window sash.

46. A method of operating a movable sash in a door comprising the steps of:

10 moving an engaging member on a sash positioning device to a
disengaged position;

moving a window sash to one of an infinite number of positions along a vertical channel;

positioning a flexible screen attached to the window sash across an opening formed by movement of the window sash;

applying a continuous positioning force to the flexible screen, the positioning equal to at least 20% of the force of gravity acting on the window sash; and

engaging the engaging member on the sash positioning device with
20 a portion of the vertical channel to secure the window sash in one the infinite
number of positions along the vertical channel.